

Serial No. 10/811,921

## REMARKS

Claims 3 - 5, 7, 8, 11 - 13, 15, 16, 18, and 20 - 22 are pending, with claim 23 having been canceled above, and with claims 1, 2, 6, 9, 10, 14, 17, and 19 having been previously canceled.

Claims 3, 4, 7, 8, 11, 12, 15, 16, 18, 20 and 22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nomiyama (JP 2000-249915) in view of Imakawa et al. (U.S. Patent No. 5,671,077). As recognized by the Examiner, the modification of Nomiyama in view of Imakawa et al. alleged by the Examiner as being obvious would **not** result in the condition (that is recited at line 12 of base claim 3, and at line 9 of claim 22) being satisfied, since only  $L / (D_{21} \cdot (1 - 1/M)) = 0.55558$  is suggested by the combination, and this is well outside the lower limit of the condition, namely:

$$0.8 < L / (D_{21} \cdot (1 - 1/M)) < 1.7 .$$

Nevertheless, the Examiner has rejected independent claims 3 and 22, as well as dependent claims 4, 7, 8, 11, 12, 15, 16, 18, and 20 that (directly or indirectly) depend from base claim 3 on the basis that "it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art". Further, the Examiner has cited In re Aller, 105 USPQ 233, as supporting the Examiner's position. Reconsideration of this rejection is respectfully requested. The Examiner is referred to the attached page from Chapter 2100 of the M.P.E.P. Although paragraph II B of MPEP Section 2144.05 makes clear that in order for In re Aller and similar cases to bar patentability, the prior art must be shown to have recognized the desirability of optimizing the "result effective variable". Therefore, unless the Examiner can show that the prior art recognized that optimizing the variable " $L / (D_{21} \cdot (1 - 1/M))$ " would be desirable, the rejection should be withdrawn.

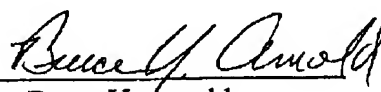
Claims 5, 13 and 21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nomiyama (JP 2000-249915) in view of Miyoshi et al. (U.S. Patent No. 5,812,892), and further in view of Harris (U.S. Patent No. 5,486,694). Reconsideration of this rejection is respectfully requested. The rejection fails to set forth a *prima facie* case of obviousness, since the last 3 lines of claim 5 patentably distinguish claim 5, as well as claims 13 and 21 that directly depend from claim 5, from the combined teachings of Nomiyama, Miyoshi et al, and Harris.

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Having canceled claim 23 and having pointed out that the rejections of record pertaining to claims 3 - 5, 7, 8, 11 - 13, 15, 16, 18, and 20 - 22 are improper and should be withdrawn, it is respectfully requested that an early Notice of Allowability be provided.

Respectfully submitted,

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Attachment: Copy of page from Chapter 2100 of the M.P.E.P that discusses In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) and In re Boesch 617 F.2d 272, 205 USPQ 215 (CCPA 1980)

## 2144.05 Obviousness of Ranges [R-5] - 2100 Patentability

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F.3d 1317, 1322, 73 USPQ2d 1225, 1228 (Fed. Cir. 2004). The patent claim at issue was directed to a weight plate having 3 elongated openings that served as handles for transporting the weight plate. Multiple prior art patents each disclosed weight plates having 1, 2 or 4 elongated openings. 392 F.3d at 1319, 73 USPQ2d at 1226. The court stated that the claimed weight plate having 3 elongated openings fell within the "range" of the prior art and was thus presumed obvious. 392 F.3d at 1322, 73 USPQ2d at 1228. The court further stated that the "range" disclosed in multiple prior art patents is "a distinction without a difference" from previous range cases which involved a range disclosed in a single patent since the "prior art suggested that a larger number of elongated grips in the weight plates was beneficial... thus plainly suggesting that one skilled in the art look to the range appearing in the prior art." *Id.*

## II. OPTIMIZATION OF RANGES

### A. Optimization Within Prior Art Conditions or Through Routine Experimentation

Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) (Claimed process which was performed at a temperature between 40°C and 80°C and an acid concentration between 25% and 70% was held to be *prima facie* obvious over a reference process which differed from the claims only in that the reference process was performed at a temperature of 100°C and an acid concentration of 10%.); see also *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382 ("The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."); *In re Hoeschel*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969) (Claimed elastomeric polyurethanes which fell within the broad scope of the references were held to be unpatentable thereover because, among other reasons, there was no evidence of the criticality of the claimed ranges of molecular weight or molar proportions.). For more recent cases applying this principle, see *Merck & Co. Inc. v. Biocraft Laboratories Inc.*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), *cert. denied*, 493 U.S. 975 (1989); *In re Kulling*, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990); and *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997).

### B. Only Result-Effective Variables Can Be Optimized

A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) (The claimed wastewater treatment device had a tank volume to contractor area of 0.12 gal./sq. ft. The prior art did not recognize that treatment capacity is a function of the tank volume to contractor ratio, and therefore the parameter optimized was not recognized in the art to be a result-effective variable.). See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (prior art suggested proportional balancing to achieve desired results in the formation of an alloy).

## III. REBUTTAL OF PRIMA FACIE CASE OF OBVIOUSNESS

Applicants can rebut a *prima facie* case of obviousness based on overlapping ranges by showing the criticality of the claimed range. "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by